

REMARKS

Claims 26-43 remain in this application. Original claims 32 and 41 were indicated to be allowable if rewritten in independent form including all the limitations of the base claim and intervening claims, which has been done by the present amendment (except for the deletion of the phrases “at least one of seed and additive” and “at least” that appeared in the original independent claims).

Claim Objections

Original claims 30 and 35-43 were objected to, and specific amendments were suggested by the Examiner to overcome the objections. All these amendments have been made above, and thus the objections should no longer be applicable to the claims as now amended. Claim 35 has also been amended to provide antecedent basis for the term “a travel direction” that appears in its dependent claim 43.

Claim Rejections

All the original claims were rejected under 35 U.S.C. § 102 or 103 on the basis of Martin 4,785,890, with the addition of Hohl 4,407,371 in the rejection of claims 31 and 40 to show a coulter wheel having a wave and ripple construction. The discussion of the latter rejection in the Office Action mentions “Bermel,” but it appears to be clear from the context that this was intended to be Martin rather than Bermel.

The Martin patent discloses a planter having a row cleaner formed by a pair of rotating toothed row-cleaning wheels 50 and 60 mounted in front of a pair of furrow-opening discs 32 and 42. The Martin patent mentions that “a single disc, coulter, or other apparatus performing that function” may be used to open a furrow, instead of the pair of discs 32 and 42. The Examiner also correctly points out that Martin’s toothed wheels 50, 60 overlap the furrow-opening discs 32, 42.

Both of the original independent claims 26 and 35 have been amended to recite a significant difference between applicant’s invention and the Martin device. Specifically, applicant’s toothed cleaning wheels are located rearwardly, not forwardly, of the coulter wheel. Thus, applicant’s toothed wheels overlap the rear portion of the coulter wheel, whereas Martin’s toothed wheels overlap the front portion of the discs 32 and 42. This is an extremely important difference. First, it causes the toothed wheels to clean the coulter wheel rather than contributing

to clogging. Second, it allows the coulter wheel to cut debris on and in the soil before that debris is moved laterally out of the way by the toothed wheels, resulting in more effective clearing of the furrow to be planted. This is especially helpful in tough residue conditions common with genetically engineered crops in reduced tillage farming systems.

This distinction has been clearly brought out by amending both independent claims 26 and 35 to recite, “a portion of said toothed wheel extending rearwardly of said coulter wheel with respect to said travel direction, and a forward portion of said toothed wheel overlapping a rear portion of said coulter wheel to strip soil clods from said coulter wheel.” This is the exact opposite of the arrangement described by Martin, which has the toothed cleaning wheels mounted in front of the discs and thus overlapping the front portions of those discs, as can be clearly seen in Martin’s drawings. Thus, Martin’s toothed wheels must try to displace debris before it has been cut by the discs and, moreover, kicks any debris carried around by the toothed wheel back against the discs, rather than cleaning the discs. Conversely, applicant’s claimed arrangement enables the toothed wheel(s) to displace debris after it has been cut, to kick that debris away from the coulter, and to clean the coulter in the process. Also, with the toothed wheel overlapping the rear portion of the coulter wheel, the coulter also cleans the toothed wheel.


Claims 27, 29, 36 and 38 recite a further advantageous feature of certain embodiments of applicant’s invention over the Martin device. These claims recite that the overlapping portion of the toothed wheel(s) converges toward the coulter so that the tips of the teeth are closest to the coulter, which assists in the cleaning action. This again is the exact opposite of the Martin structure, in which the overlapping portions of the toothed wheels diverge away from the discs, as can be clearly seen in Martin’s Figs. 2 and 6. Martin understandably never mentions that his toothed wheels provide any cleaning of the furrow-opening discs.

Accordingly, reconsideration of the claims as now amended is respectfully requested.

It is believed that no fee is presently due; however, should any additional fees be required (except for payment of the issue fee), the Commissioner is authorized to deduct the fees from Jenkins & Gilchrist, P.C. Deposit Account No. 10-0447, Order No. 50600-00012USC1.

Respectfully submitted,

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